

ABSTRACT OF THE DISCLOSURE

A Coarse Wavelength Division Multiplex (CWDM) system comprises a plurality of transmission channels to send data from transmitter site to remote receiver over a single trunk fiber. The lasers of all channels are un-cooled in transmitter site. The wavelength plan associated with the de-multiplexing filter pass-band of each channel in receiver site tolerates the wavelength variation of 5 nm when the temperature changes from 0 to 50⁰ C degree. The de-/multiplexing device has two stages. The first stage has a plurality element, each to de-/multiplex between multiple individual channels and a small band of wavelength. The second stage de-/multiplexes between multiple small bands and the entire large band. A plurality of semiconductor optical amplifiers is placed between the two stages of the de-/multiplexing component to compensate optical loss to all optical channels over optical fiber and other optical components.